

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :
Jack H. Winters : Attorney Ref.: 112063CIP
Serial No.: 09/781,445 : Confirmation No.: 9556
Filed: February 13, 2001 : Art Unit: 2665
FOR: SYSTEM AND METHOD FOR : Examiner: Thomas E. Volper
SELECTING A TRANSMISSION :
CHANNEL IN A WIRELESS :
COMMUNICATION SYSTEM :
THAT INCLUDES AN ADAPTIVE :
ANTENNA ARRAY :
:

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
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Sir:

Pursuant to 37 C.F.R. § 1.192, Appellant submits this Appeal Brief to the Board of Patent Appeals and Interferences. In the July 12, 2005 Final Office Action, the Examiner finally rejected claims 1-22. A Notice of Appeal having been filed on December 12, 2005, this Appeal Brief is now being filed and the corresponding Appeal Brief fee payment.

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I. Real Party Interest

The real party in interest is AT&T Corp., the assignee of the entire right, title, and interest in the application.

II. Related Appeals and Interferences

There are currently no appeals or interferences related to this application that are awaiting decision by the Board of Patent Appeals and Interferences.

III. Status Of Claims

Claims 1-22 are pending. Claims 1-22, as set forth in the Claims Appendix, were rejected in the final Office Action and the subsequent Advisory Action, and are involved in this appeal.

IV. Status Of Amendments

No amendments have been filed subsequent to the final rejection of claims 1-22 in the Final Office Action dated July 12, 2005. A Request for Reconsideration was filed on December 12, 2005 with a Notice of Appeal, and the arguments therein have been considered by the Examiner who maintains that they do not place the application in condition for allowance for the reasons as indicated in the Advisory Action dated January 23, 2006.

V. Summary Of Claimed Subject Matter

The invention relates to a system and method of providing a wireless communication system. The system embodiment comprises receiver having an adaptive array, the adaptive array having at least two antennas to receive a signal and produce at

least two received signals, a transmitter having at least two transmission channels for communicating the signal from the transmitter to the receiver, means for suppressing interference at the receiver by applying an interference suppression technique when combining said at least two received signals and means for selecting a channel at the transmitter based on channel performance at the receiver for each of said at least two transmission channels, the channel performance based on a combining technique different from the interference suppression technique.

VI. Grounds of Rejection to be Reviewed on Appeal

- 1. Whether the rejection of claims 1 - 22 under 35 U.S.C. § 103(a) over U.S. Patent No. 6,853,629 to Alamouti et al. (“Alamouti et al.”) in view of U.S. Patent No. 6,795,424 to Kapoor et al. (“Kapoor et al.”) should be reversed**

VII. Arguments

A. Summary of the Arguments

With regard to the claim rejection under 35 U.S.C. § 103(a) based on Alamouti et al. in view of Kapoor et al., the rejection should be reversed because the Examiner has set forth in several core instances in the prosecution an inappropriate analysis and conclusion in whether the legal motivation or suggestion exists to combine Alamouti et al. with Kapoor et al. For example, in the Final Office Action on page 2, the Examiner asserts that “It is not necessary that a ‘prima facie’ case of unpatentability exist as to the claim in order for ‘a substantial new question of patentability’ to be present in the claims.” As can be seen and will be set forth below, the Examiner is mixing up a re-examination analysis with the fundamental obviousness analysis. Furthermore, the

Examiner applies other inapplicable cases dealing with spray-dried detergents to continue to mis-apply the *prima facie* obviousness analysis that should be operable in this case. Accordingly, Appellants request that an appropriate analysis be applied to these two references from which the conclusion should be drawn that under the standard of a preponderance of the evidence, there is insufficient motivation or suggestion to combine these references.

B. Detailed Arguments

1. The Examiner has failed to establish a *prima facie* case of obviousness and is mis-applying the law

The Examiner responded to Appellants argument presented in the April 14, 2005 Response regarding the Examiner's burden to establish a *prima facie* case of obviousness by citing *In re Etter*, 756 F.2d 852, 857 n. 5 (Fed. Cir. 1985). In essence, Appellants have articulated and cited the MPEP detailing the distribution of the burden of proof in the exchange of arguments between the Patent Office and Appellants. "The Examiner carries in initial burden of factually supporting any *prima facie* conclusion of obviousness." See MPEP 2142. In response, the Examiner has argued that it is not necessary to establish a *prima facie* case in order for "a substantially new question of patentability" to be present. Final Office Action, Page 2. The Examiner stated that "Thus, 'a substantial new question of patentability' as to a claim could be present even if the examiner would not necessarily reject the claim either as fully anticipated by, or obvious in view of, the prior art patents or printed publications." The Examiner points us to *In re Etter* for the differences between "a substantial new question of patentability" and a "prima facie" case of unpatentability.

Appellants respectfully submit that the legal analysis of “a substantial new question of patentability” is irrelevant to the present issue of patentability at this stage of prosecution. *In re Etter* is cited in the MPEP Section 2242 but this case relates to the issue of whether or not a re-examination is ordered. *In re Etter* sets forth the analysis of when a re-examination is to be ordered (which requires “a substantial new question of patentability”) in contrast to prosecution in the first instance (in which the Examiner is bound by the burden to factually articulate a *prima facie* case of unpatentability). The re-examination standard requires a “a substantial new question of patentability” because the previous issue of patentability was already determined by the initial prosecution which is clearly evidenced by an issued patent which is now subject to a “new” question of patentability. As set forth in MPEP 2242, this standard requires both (1) teachings of the prior art that are important to deciding whether or not the claim is patentable (emphasis in original) and (2) that the same question of patentability as to the claim has not been decided by the office in a previous examination. Accordingly, the issue of a new question of patentability and the legal analysis associated with that question simply do not apply to the initial patentability analysis we are engaged in here (which is before the issuance of a patent which then becomes subject to the question of re-examination).

Appellants respectfully submit that if the analysis that the Examiner sets forth in this final office action were applied in this case or in general by the Patent Office, then it would eliminate the entire structure and burden allocating function of the *prima facie* process set forth in MPEP 2142. In this scenario, no Examiner would be required to establish or even articulate a *prima facie* case of obviousness but would merely need to

state that a “a substantial new question of patentability” exists and then proceed to reject the claims. For this reason, Appellants respectfully request that the legal framework applied to the claims in this case be corrected to conform to the MPEP. Appellants submit that this alone is reason enough to either allow this case or re-open the prosecution and issue a non-final office action in which the burden is appropriately met by the Examiner. Even in the outstanding Final Office Action, the Examiner has not adequately carried this burden. In the Final Office Action on page 6, line 14, the Examiner simply states that Kapoor et al. is “in the same field of endeavor”. There is no analysis related to the required articulation of why would one of skill in the art be motivated to combine these references.

In the Advisory Action dated January 23, 2006, the Examiner maintained his position and noted that the evidence of suggestion, teaching or motivation may flow from the references themselves, the knowledge of skill in the art or from the nature of the problem to be solved, citing *In re Dembicza*k, 175 F.3d 994, 1000, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). This is an interesting case to cite. In *In re Dembicza*k, the Federal Circuit reversed the Board of Patent Appeals and Interferences because the Board failed to do exactly what Appellants argue in the present case the Examiner has failed to do – which is to articulate with “actual evidence” and with a showing that must be “clear and particular” the motivation or suggestion to combine. *Id.*

The Board in *In re Dembicza*l did several things – none of which satisfied the Federal Circuit. The Board stated that the cited references would have suggested that application of facial indicia to the prior art plastic trash bags (the invention was a trash bag with a pumpkin image thereon), the Board described similarities between the prior

art references and so forth but in no place did the board “particularly identify any suggestion, teaching, or motivation to combine the … references…nor does the Board make specific – or even inferential – findings concerning the identification of the relevant art, the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that might serve to support a proper obviousness analysis.” *Id.* In reversing the Board, the Federal Circuit in *In re Dembicza*k instructed the Board with the exact conclusion Appellants seek in this appeal – a “proper obviousness analysis.”

Next, Appellants discuss some of the Examiner’s avoiding the core obviousness analysis throughout prosecution of this case. In response to Appellants arguments (in Appellants April 14, 2005 Response, at page 4, third paragraph) regarding the lack of motivation or suggestion to combine and the lack of an articulated *prima facie* case of obviousness, the Examiner responded at page 3, second paragraph and page 4, second paragraph of the Final Office Action. These are primarily arguments that relate to the teachings of the prior art but are not part of Appellants arguments about the motivation to combine. In sum, Appellants have argued that (1) one of skill in the art would not be motivated to utilize the teachings of Kapoor et al. relative to diversity combining techniques because Alamouti et al. already teaches various kinds of diversity combining; and (2) Alamouti et al. already teaches the RSSI and SINR channel selection method and Kapoor et al. provides no additional insight or teachings regarding channel selection.

Rather than address the specific legal issue of motivation or suggestion, the Examiner on Page 4 of the Final Office Action notes again that Alamouti et al. teaches the RSSI and SINR channel selection and that Kapoor et al. again teaches a diversity

combining (SDC) technique. The Examiner concludes on the bottom of page 4 that “this process is considered well known, and admitted as prior art.” However, the MPEP, Section 2143.01, clearly states if a reference was individually “known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reasons to combine the teachings of the references.” Furthermore, the Examiner must “present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” MPEP 2142.

Appellants have argued that the Examiner has yet to carry the initial burden of providing a convincing and articulated line of reasoning for the motivation to combine these references. In addition, Appellants have set forth at least two clear rebuttal arguments above against sufficient motivation to combine. See April 14, 2005 Response. MPEP 2142 requires the Examiner to “reconsider the patentability of the claimed invention … based upon consideration of all the evidence....” In so doing, the standard of evidence is only by a “preponderance of the evidence.” As the record stands, Appellants have explained several reasons against the motivation to combine and the Examiner has only provided that the prior art processes are “well known” and that Kapoor et al. is “in the same field” as Alamouti et al.

Then, in the Advisory Action, the Examiner has further misapplied the basic obviousness approach by stating that “it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, the idea of combining them flows logically from their having been individually taught in the prior art.” The Examiner cites MPEP 2144.06 and *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ

1069 (CCPA 1980). There are several problems with this approach. First, the *In re Kerkoven* case deals with the CCPA finding that claims directed to a process of preparing a spray-dried detergent by mixing together two conventional spray-dried detergents was *prima facie* obvious. Therefore, in the cited case, the claims were directed towards combining two *compositions* (spray-dried detergents) that were useful for the same purpose (cleaning). In the present case, we are dealing with wireless communication systems – which in a technological way are entirely different from detergents and blending the technologies of these two references is much more difficult than mixing detergents in a bottle. The disparate electrical components disclosed in each of Alamouti et al. and Kapoor et al. cannot be said to each be a “composite” that is “useful for the same purpose” in the sense that a spray-dried detergent is a composite in which one simply needs to mix two detergents together. In fact, in *In re Kerkhoven*, the two “compositions” are not even references; they are simply two spray-dried detergents that the board held were obvious to combine.

Furthermore, to distinguish the present case from *In re Kerkoven*, the two references in the present case are not “useful for the same purpose” as the two composites were in *In re Kerkhoven*. Alamouti et al. disclose a method for frequency divisional duplex communications and focuses on the “excellent fading resistance” and the ability of changing the user’s available bandwidth on demand by assigning additional TDMA slots during the session. See Abstract. Kapoor et al. teach a method and apparatus for interference suppression in OFDM systems. Thus, these two references are known taught to be “useful for the same purpose.”

Appellants note that the Examiner may respond by asserting that both prior art

references relate to wireless communication and thus are used for the same purpose.

In this case, if such a precedence was set by the Board, then the underlying *prima facie* analysis would disappear because any two references that relate to wireless communications would automatically be *prima facie* obvious to combine by applying the *In re Kerkhoven* analysis. The better approach is to limit the scope of *In re Korkhoven* to its facts – which require two “composition” each “useful for the same purpose” as in detergents that are spray-dried and that can be simply mixed in a bottle.

2. The rejection of claims 1 - 22 under 35 U.S.C. § 103(a) based on Alamouti et al. in view of Kapoor et al. should be reversed because the Examiner has not demonstrated the requisite motivation to combine these teachings

Based on the analysis above, Appellants respectfully submit that the Examiner has yet to articulate in a “clear and particular” way the facts that would support an obviousness analysis. In contrast, Appellants in this prosecution have detailed specific reasons why one of skill in the art would not have found motivation to combine these references. Some of the principles are set forth again below.

a. The Examiner has not demonstrated the requisite motivation to combine the teachings of Alamouti et al. with Kapoor et al.

To establish a *prima facie* case of obviousness, the Examiner must meet three criteria. First, there must be some motivation or suggestion, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to combine the references. Second, there must be a reasonable expectation of success, and finally, the prior art references must teach or suggest all the claim limitations. The Examiner bears the initial burden of providing some suggestion of the desirability of

doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." M.P.E.P. § 2142.

Several other principles concerning an obviousness rejection are applicable here. These requirements were mentioned in the prosecution. If the Examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. § 103, the Examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the appellant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. § 103, the Examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not. M.P.E.P. § 2142.

Furthermore, the test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. Where the teachings of two or more prior art references conflict, the Examiner must weigh the

power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 U.S.P.Q.2d 1089 (Fed. Cir. 1991). M.P.E.P. § 2143.01. Thus, the M.P.E.P. requires that each prior art reference must be considered in its entirety, as a whole, including portions that would lead away from the claimed invention. M.P.E.P. § 2141.02.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). M.P.E.P. § 2143.01.

With at least some of the relevant passages set forth above, Appellants respectfully submit that by a preponderance of the evidence, Alamouti et al. should not be combined with Kapoor et al. Therefore, claim 1 and its dependent claims are patentable. Similarly, since claims 2 - 22 each are rejected based on the combination of Kapoor et al. with Alamouti et al., Appellants submit that these claims are patentable as well. The Examiner's rejection should be reversed with instructions that these two references should not be combined.

C. Conclusion

For the reasons given above, the Board of Patent Appeals and Interferences is respectfully requested to reverse the outstanding rejections under 35 U.S.C. § 103(a) so that claims 1-22 may be allowed.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 50-2960.

Having addressed the rejection of claims, Appellants respectfully submit that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

Date: February 13, 2006

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VIII. Claims Appendix

1. (original) A wireless communication system comprising:

 a receiver having an adaptive array, the adaptive array having at least two antennas to receive a signal and produce at least two received signals;

 a transmitter having at least two transmission channels for communicating the signal from the transmitter to the receiver;

 means for suppressing interference at the receiver by applying an interference suppression technique when combining said at least two received signals; and

 means for selecting a channel at the transmitter based on channel performance at the receiver for each of said at least two transmission channels, the channel performance based on a combining technique different from the interference suppression technique.

2. (original) The system of claim 1, wherein the receiver communicates with at least two transmitters.

3. (original) The system of claim 1, wherein the transmitter is a mobile terminal and the receiver is a base station.

4. (original) The system of claim 1, wherein the transmitter is a base station and the receiver is a mobile terminal.

5. (original) The system of claim 1, wherein the means for suppressing interference applies minimum mean square error combining.
6. (original) The system of claim 5, wherein the means for selecting the best performing channel applies maximum ratio combining.
7. (original) The system of claim 5, wherein the means for selecting the best performing channel applies selection diversity combining.
8. (original) The system of claim 5, wherein the means for selecting the best performing channel applies equal gain combining.
9. (original) The system of claim 5, wherein the means for selecting the best performing channel applies switched diversity combining.
10. (original) A method of wireless communication between a transmitter and a receiver comprising the steps of:
 - communicating a signal from the transmitter to the receiver, the transmitter having at least two transmission channels;
 - receiving the signal at a receiver having an adaptive array, the adaptive array having at least two antennas to receive the signal and produce at least two received signals;

suppressing interference at the receiver by applying an interference suppression technique when combining said at least two received signals; and
selecting the transmission channel at the transmitter based on channel performance at the receiver for each of said at least two transmission channels, channel performance based on a combining technique different from the interference suppression technique.

11. (original) The method of claim 10, wherein the receiver communicates with at least two transmitters.

12. (original) The method of claim 10, wherein the transmitter is a mobile terminal and the receiver is a base station.

13. (original) The method of claim 10, wherein the transmitter is a base station and the receiver is a mobile terminal.

14. (original) The method of claim 10, wherein the suppressing step applies minimum mean square error combining.

15. (original) The method of claim 14, wherein the selecting step applies maximum ratio combining.

16. (original) The method of claim 14, wherein the selecting step applies selection diversity combining.

17. (original) The method of claim 14, wherein the selecting step applies equal gain combining.

18. (original) The method of claim 14, wherein the selecting step applies switched diversity combining.

19. (previously presented) A method of operating a receiver in a wireless communication system, the receiver having an adaptive array comprising at least two antennas to receive a signal from a transmitter having at least two transmission channels and to produce at least two received signals, the method comprising:

suppressing interference by applying an interference suppression technique when combining the at least two received signals; and

selecting a channel at the transmitter based on channel performance at the receiver for each of at least two transmission channels, the channel performance based on a combining technique different from the interference suppression technique.

20. (previously presented) A receiver in a wireless communication system comprising:

an adaptive array comprising at least two antennas to receive a signal from a transmitter having at least two transmission channels and to produce at least two received signals;

means for suppressing interference by applying an interference suppression technique when combining the at least two received signals; and

means for selecting a channel at the transmitter based on channel performance at the receiver for each of at least two transmission channels, the channel performance based on a combining technique different from the interference suppression technique.

21. (previously presented) A method of operating a transmitter having at least two transmission channels in a wireless communication system, the transmitter communicating with a receiver having an adaptive array having at least two antennas to receive the signal and produce at least two received signals, wherein the receiver suppresses interference by applying an interference suppression technique when combining the at least two received signals, the method comprising:

receiving a signal from the receiver indicating a selection of one of the at least two transmission channels based on channel performance at the receiver for each of the at least two transmission channels, wherein the channel performance is based on a combining technique different from the interference suppression technique; and

communicating with the receiver using the selected one of the at least two transmission channels.

22. (previously presented) A transmitter having at least two transmission channels in a wireless communication system, the transmitter communicating with a receiver having an adaptive array having at least two antennas to receive the signal and produce at least two received signals, wherein the receiver suppresses interference by applying an interference

suppression technique when combining the at least two received signals, the transmitter comprising:

means for receiving a signal from the receiver indicating a selection of one of the at least two transmission channels based on channel performance at the receiver for each of the at least two transmission channels, wherein the channel performance is based on a combining technique different from the interference suppression technique; and

means for communicating with the receiver using the selected one of the at least two transmission channels.

IX. Evidence Appendix

None

X. Related Proceeding Appendix

None